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10/544,264	08/02/2005	Takahiro Matsuzawa	05500/LH	1489

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EXAMINER	
MARTIN, LAURA E	

ART UNIT	PAPER NUMBER
2853	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/544,264	MATSUZAWA ET AL.	
	Examiner	Art Unit	
	LAURA E. MARTIN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,6,7,9,11-15,17,20,22,23,25,27-31 and 33-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6,7,9,11-15,17,20,22,23,25,27-31 and 33-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 17 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (US 6250733 B1) in view of Bruch et al. (US 2002/0163551 A1).

Yao discloses the following claim limitations:

As per claims 1 and 17: jetting onto a recording medium by recording heads, recording ink containing a color material and colorless ink for improving gloss that does not substantially contain a color material (column 9, line 25 – column 10, line 12), dividing pixel data of the image data into unit blocks so that each unit block is formed of an aggregate of n pixels where n is greater than 1 (figure 5); and determining an adhered amount of the colorless ink in each said unit block in response to an adhered amount of the recording ink in each said unit block; wherein each said unit block is set to have a size of 1 mm square or less on the recording medium, and the adhered amount of the colorless ink for each said unit block is determined such that a sum total of the adhered amounts of the colorless ink and the recording ink in each said unit block is at least a predetermined amount; and wherein a jetted position of the colorless ink in each said unit block is determined as a position that is not adjacent to a jetted position

of the recording ink in each said unit block, when the position that is not adjacent to the jetted position of the recording ink in each said unit block exists (figure 5, column 5, lines 25-37 – 10% of the threshold values are printed with cyan; magenta is printed in response to the cyan being printed because it is printed after cyan is printed). The examiner notes that "adjacent" is broad in that two dots can be adjacent a significant space away if there are no pixels between them. The examiner has read the claim as if the applicant had meant "adjacent" pixels to be touching.

As per claims 35 and 37: the image data has a gradation and the pixel data is obtained by a halftone process (column 9, line 25 – column 10, line 12).

As per claims 36 and 38: the halftone process uses a dither matrix and each said unit block is the same as a unit block of the dither matrix (column 9, line 25 – column 10, line 12).

Yao et al. do not disclose the following claim limitations:

As per claims 1 and 17: each pixel unit block is set to have a size of 1 mm square or less on the recoding medium.

Bruch et al. the following claim limitations:

As per claims 1 and 17: the pixel data of the image data is divided into blocks, and each unit block is set to have a size of 1 mm square or less.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus taught by Takabayashi et al. with the disclosure of Bruch et al. in order to provide a high quality image. It would have been well known in the art at the time of the invention to print at resolutions of different

amounts. It also would have been well known in the art at the time of the invention that the size of the unit blocks can vary so as to incorporate more or less data into a unit block and so as to deal with different levels of resolution.

Claims 6, 7, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (US 6250733 B1) in view of Bruch et al. (US 2002/0163551 A1), and further in view of Onishi et al. (US 2001/0015745 A1).

Yao et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Yao et al. as modified do not disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m^2.

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2.

Onishi et al. disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m^2 [0018].

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2 [0018].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording method taught by Yao et al. as modified with the disclosure of Onishi et al. in order to provide a high quality image. It would have been

well known in the art at the time of the invention that the amount of ink within a recording area can vary as based on printing resolution.

Claims 4, 9, 11-13, 20, 25, 27-29, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (US 6250733 B1) in view of Bruch et al. (US 2002/0163551 A1), and further in view of Ishimoto et al. (US 6877850 B2).

Yao et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Yao et al. as modified do not disclose the following claim limitations:

As per claims 4 and 20: the adhered amount of colorless ink is increased in a first unit block where the adhered amount of recording ink is a predetermined amount or less than in a second unit block where the adhered amount of recording ink is more than the predetermined amount.

As per claims 9 and 25: a jetted position of the colorless ink jetted onto each said unit block is determined preferentially from a pixel in which the adhered amount of the recording ink is smaller.

As per claims 11 and 27: the recording ink contains fine particles.

As per claims 12 and 28: the recording medium includes a micro-porous recording medium.

As per claims 13 and 29: a surface layer of the recording medium contains a thermoplastic resin.

As per claims 33 and 34: the recording ink is an aqueous pigment as said color material, and the colorless ink is an aqueous ink containing a dispersed resin and substantially no pigment.

Ishimoto et al. disclose the following claim limitations:

As per claims 4 and 20: the adhered amount of colorless ink is increased in a first unit block where the adhered amount of recording ink is a predetermined amount or less than in a second unit block where the adhered amount of recording ink is more than the predetermined amount (column 4, line 65-column 5, line 20).

As per claims 9 and 25: a jetted position of the colorless ink jetted onto each said unit block is determined preferentially from a pixel in which the adhered amount of the recording ink is smaller (column 4, line 65-column 5, line 20).

As per claims 11 and 27: the recording ink contains fine particles (column 3, lines 37-55).

As per claims 12 and 28: the recording medium includes a micro-porous recording medium (column 1, lines 18-32 and column 8, lines 36-51).

As per claims 13 and 29: a surface layer of the recording medium contains a thermoplastic resin (column 8, lines 36-51).

As per claims 33 and 34: the recording ink is an aqueous pigment as said color material, and the colorless ink is an aqueous ink containing a dispersed resin and substantially no pigment (column 3, lines 5-13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording method taught by Yao et al. as modified with the

disclosure of Ishimoto et al. in order to provide a high quality image with excellent gloss and reduced unevenness. It would have been well known in the art at the time of the invention that the amount of colored and colorless ink within a recording area can vary as based on printing resolution. It would have also been well known in the art at the time of the invention that there are different types of colorants and resins that can be used in inkjet ink, and ink can be printed on a plurality of substrates.

Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (US 6250733 B1) in view of Bruch et al. (US 2002/0163551 A1), and further in view of Shigemura (US 2001/0017642 A1).

Yao et al. as modified disclose the following claim limitations:

Claims 13 and 29.

Yao et al. as modified do not disclose the following claim limitations:

As per claims 14 and 30: a fixing process including heating or pressurization is implemented for the recording medium on which the recording ink and the colorless ink are jetted.

Shigemura discloses the following claim limitations:

As per claims 14 and 30: a fixing process including heating or pressurization is implemented for the recording medium on which the recording ink and the colorless ink are jetted [0204].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Yao et al. as modified with the disclosure of

Shigemura in order to provide a higher quality image on different types of substrates. It would have been well known in the art at the time of the invention that resins can be hardened by means such as heating, radiation, or pressurization.

Claims 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao (US 6250733 B1) in view of Bruch et al. (US 2002/0163551 A1), and further in view of Kida et al. (WO 03/024723) [US 2004/0196351 A1 will be used for referencing and assumed as an English translation of the PCT application].

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Yao et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Yao et al. as modified do not disclose the following claim limitations:

As per claims 15 and 31: a rate of light absorbance change in mixing the recording ink and the colorless ink with each other is less than 5%.

Kida et al. disclose the following claim limitations:

As per claims 15 and 31: a rate of light absorbance change in mixing the recording ink and the colorless ink with each other is less than 5%.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set taught by Yao et al. as modified with the disclosure of Kida et al. in order to improve image quality and gloss. It would have been obvious to one of ordinary skill in the art at the time of the invention that, when mixing a colorless ink with one that is colored, different levels of absorbance can be formed, including ones that do not vary substantially from the absorbance of the colored ink alone.

Response to Arguments

Applicant's arguments with respect to claims 1, 4, 6, 7, 9, 11-15, 17, 20, 22, 23, 25, 27-31 and 33-38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAURA E. MARTIN whose telephone number is (571)272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura E. Martin/
Examiner, Art Unit 2853